# Designing Conditioning Programs for Tactical Trainees

Orr, Rob Marc

# DESIGNING CONDITIONING PROGRAMS FOR TACTICAL TRAINEES

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# Contents

- Risk Factors to the New Recruit / Trainee
- Risk Factors due to the Program
- A Periodised Plan

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
- Poor nutritional intake
- Poor sleep
- Unhealthy lifestyle (smoking)

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Lower levels of fitness = more risk of injury AND failure to complete training

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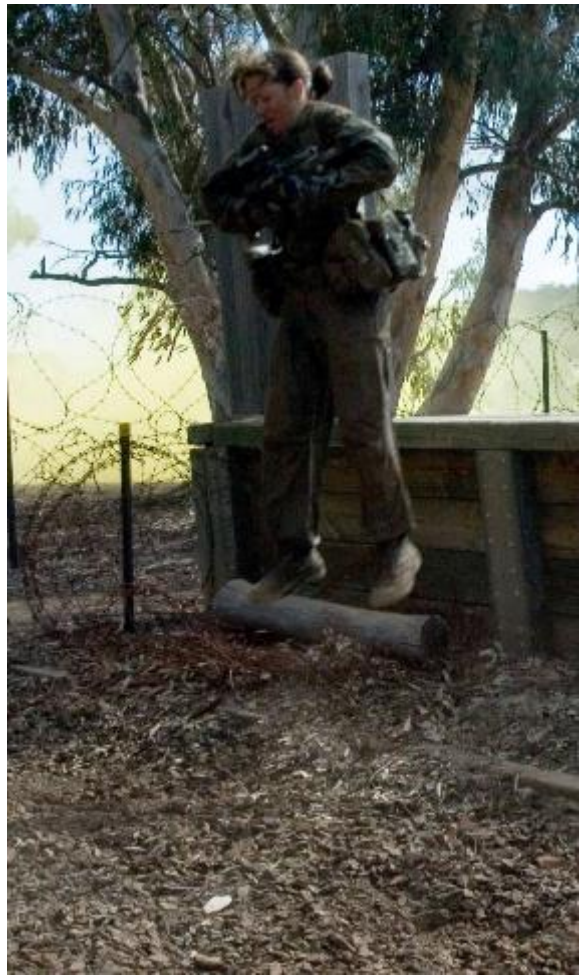
# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Lower levels of fitness = increased fatigue



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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Glycogen depletion
  - Glycogen store recovery, from a state of complete depletion, will take a minimum of 24 hours with nutritional uptake being optimal to replenish. This time period can increase past seven days if the depletion is associated with muscle micro damage.
  - Considering this, Pope (2001p.4) states that:

    '…if an unfit military member completely depletes their muscle glycogen stores during the first day of an exercise program or unit exercise, they will be forced to attempt the activities of the next day with only perhaps 20 to 50% of their original stores (replenished overnight), and will become totally fatigued much earlier in the next day's activities.'

http://news.xinhuanet.com/english/china/2013-08/13/c_132626013.htm

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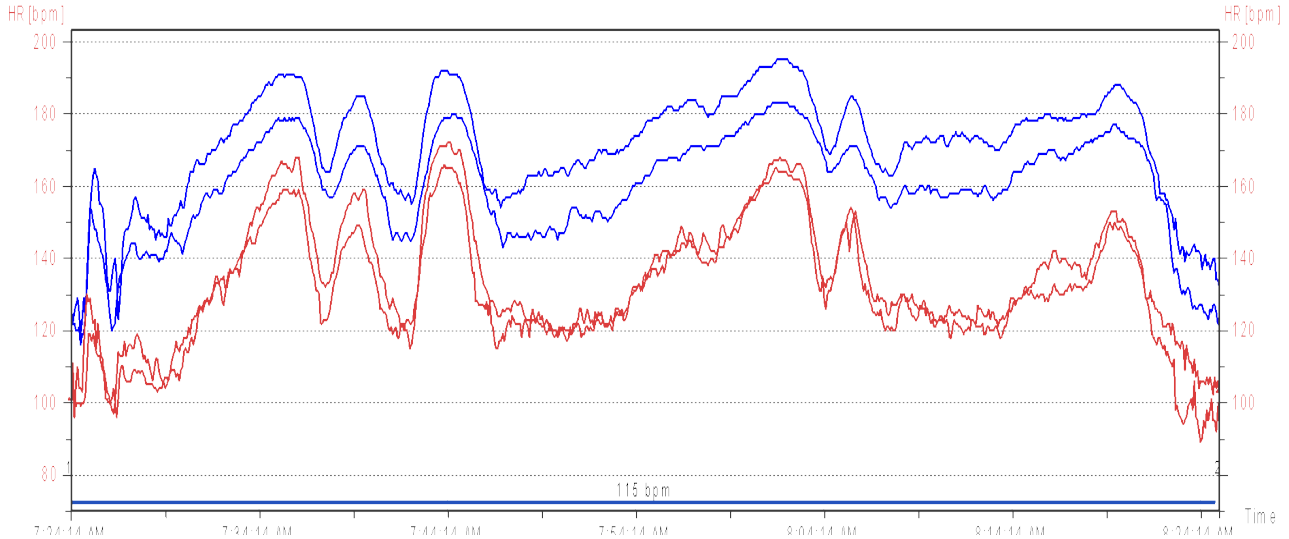
# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Glycogen depletion
    - Glycogen depletion associated with increased heart rates (working harder for the same task)



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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Glycogen depletion = Poor concentration = Increased risk of injury

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Glycogen depletion = Poor concentration = Failing theory / practical assessments

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Those joining are less fit
    - The youth of today are less physically fit and have a higher excess body mass than in previous years (Booth et al., 2003).

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Those joining are less fit

China

Most Searched: •Xi Jinping •C

## Students fail army fitness standards

English.news.cn 2013-08-13 11:01:24

College students intending to join the army take eyesight tests at a Beijing hospital on Saturday. A Beijing Sport University professor says students' physical condition "has been declining since 1995". (Photo: China Daily)

By Zheng Xin

BEIJING, Aug. 13 (Xinhuanet) -- Beijing's army recruitment efforts have been increasingly hampered in recent years by a decline in the physical fitness of candidates, with many being ruled unsuitable due to common complaints such as being overweight or shortsighted.

According to Beijing's army recruitment office, around 60 percent of college students who apply for military service fail the physical fitness exam, posing a serious problem for the recruitment of college graduates into the army.

Most graduates are overweight or lack physical strength due to their sedentary lifestyles, with many also suffering from poor eyesight, according to the recruitment office.

http://news.xinhuanet.com/english/china/2013-08/13/c_132626013.htm

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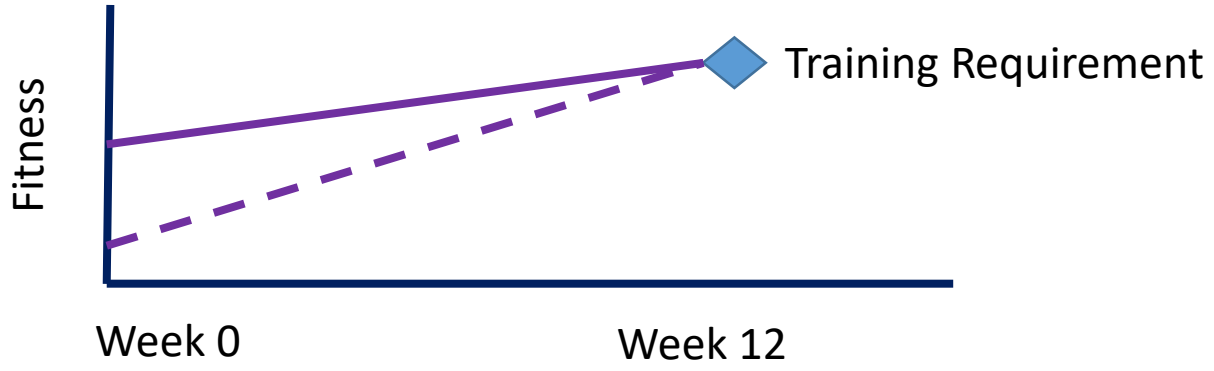
# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Those joining are less fit
  - Increasing the challenge of making them fit enough for their service during the limited time period for training



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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Unsurprising that new trainees are at a high risk of injury due to the sudden increase in physical conditioning requirements, the complexity of new physical tasks, reduced opportunity for recovery and resulting increased risk of overtraining (Booth et al., 2006: Kaufman et al., 2000: Knapik et al., 2011: Orr, 2014)

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Low fitness
  - Make the program longer?
    - Recruit training changed from 80d to 100d
      - More gradual increase load over first four weeks
      - Additional military field training and extended field phase
    - Injury prevalence:
      - 80d = 17.8%
      - 100d = 13.9%
    - Injury incidence:
      - 80d= 17.8 / 100 soldiers / 100 days
      - 100d: 17.4 / 100 soldiers / 100 days

Dawson, et al., (2015)

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Poor nutritional intake
  - Impacts of communal cooking
    - Cooking food in large quantities quickly as cheaply as possible
    - Food kept in containers for large groups / sharing food
    - Up to 10% found to be suffering from conjunctivitis or gastroenteritis



Orr & Moorby, (2006)

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Poor nutritional intake
  - Meal timings
    - 1 hour (1200-1300)
    - After marching to and from eating facility, standing in line for food, completing other tasks, preparing for next lesson (change of clothes, getting equipment, etc) and marching to the next lesson…
    - Recruits were found to have around 10 minutes in the eating facility of which an average of 5 minutes was actually spent eating

Orr & Moorby, (2006)

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**Reduced Energy Intake** | **Increased Energy Demand**

Inadequate Breakfast time leads to low Energy Stores

Demanding Physical Training Session further diminishes Energy Stores

No Energy Replacement Opportunities (Morning Tea or Meal Supplementation)

Low Energy (Glucose / Glycogen Stores)

Acute Effect

Chronic Effect

Decreased Concentration

Increased Metabolic Fatigue

Overtraining

**INCREASED INJURY RISK AND POTENTIAL DECREASE IN COGNITIVE PERFORMANCES**

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Poor sleep patterns
  - Lights out at 2200 – Reveille at 0600
    - 8 hours?
    - Falling asleep – just because work finishes doesn't mean recruits just fall asleep
    - Snoring, moving in the night – breaks sound sleep

Orr & Moorby, (2006)

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# RISK FACTORS TO THE NEW RECRUIT / TRAINEE

- Poor health
  - Cigarette smoking a know cause of injury risk in military trainees (Heir & Eide, 1997: Jones, et al., 1993: Kaufman et al., 2000)

Orr & Moorby, (2006)

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# RISK FACTORS DUE TO THE PROGRAM

- Pattern Overload
- Excessive run mileage
- Informal loading
- One-size-fits-all approach
- Low synergy requirements

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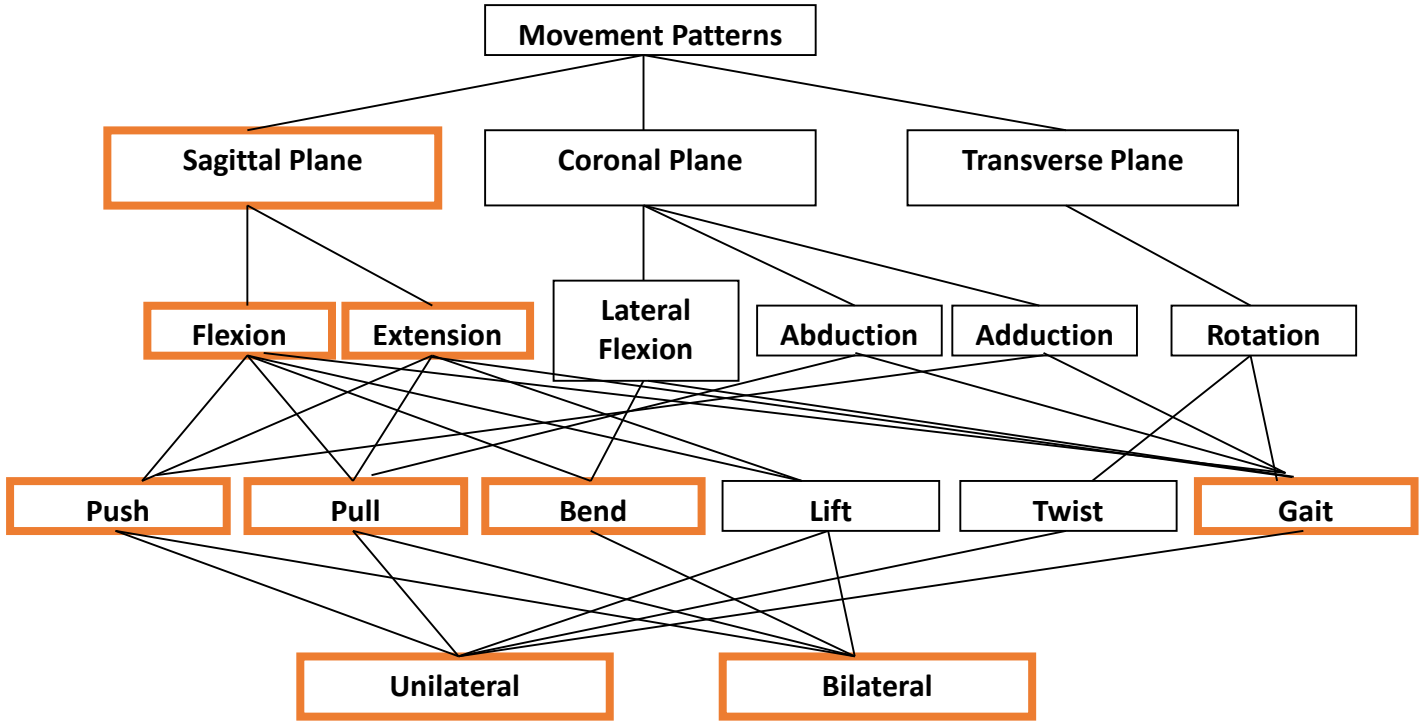
# RISK FACTORS DUE TO THE PROGRAM

- Pattern Overload = overuse injuries



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# RISK FACTORS DUE TO THE PROGRAM

- Pattern Overload
  - Easy exercises to do (Run, sit up, push up)

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# RISK FACTORS DUE TO THE PROGRAM

- Pattern Overload
  - Train to pass tests (Run, sit up, push up)

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# RISK FACTORS DUE TO THE PROGRAM

- Excessive run mileage
  - Trank (2001)

    observed that exercise programs which employ high running mileages (> 25 miles) during basic training led to a higher potential for overuse injury than recruits who completed less overall running mileage (< 25 miles)

    the additional mileage did not appear to increase aerobic fitness to a greater degree
  - Results confirmed by other studies (Fields, et al., 2010; Jones & Knapik, 1999; Sherrard, et al., 2002).

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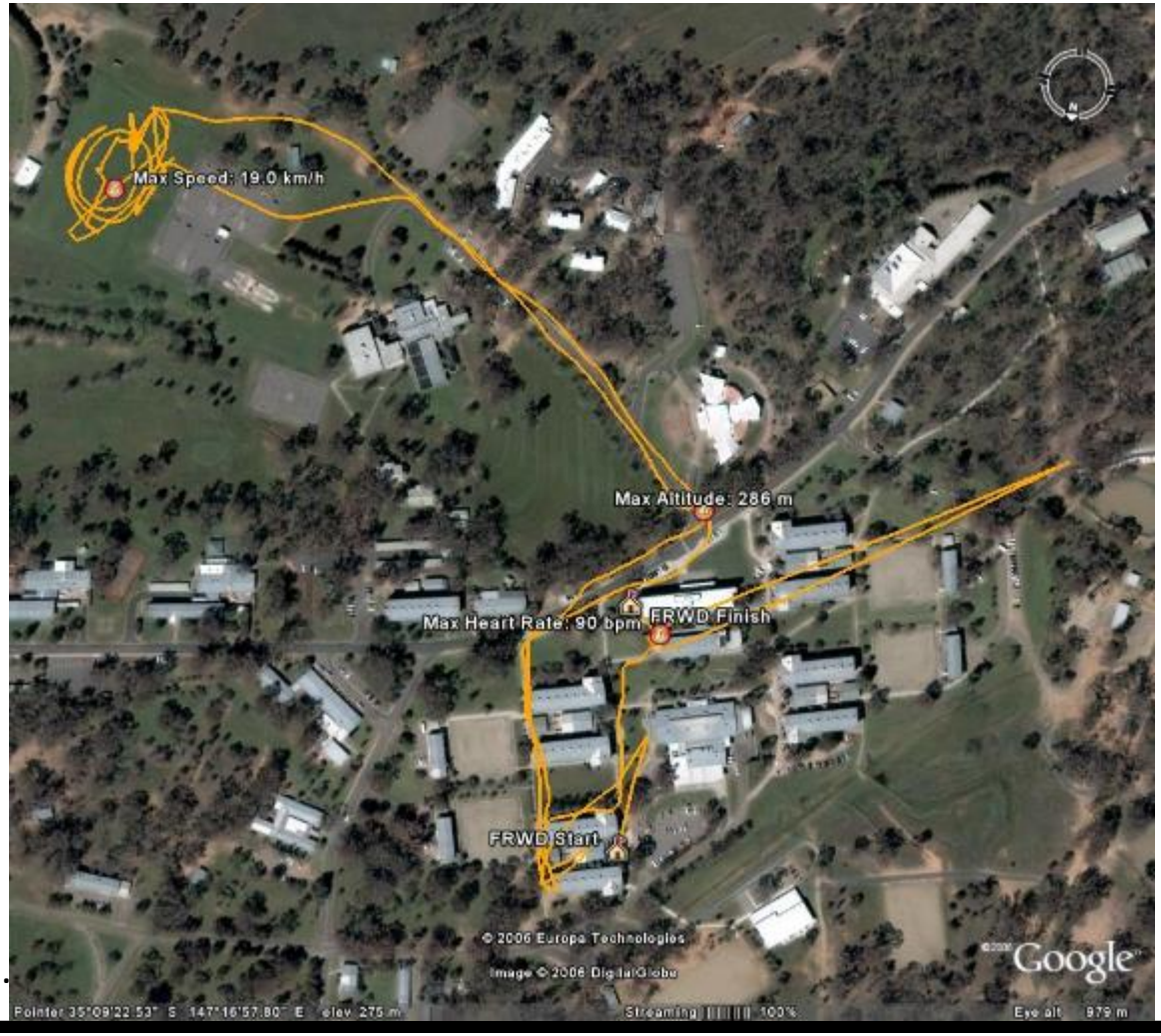
# RISK FACTORS DUE TO THE PROGRAM

- Informal loading
  - Australian Army Study = Approx. 7.5km/day
  - US Army Study = Approx. 11km/day
  - Many new recruits direct from High School
    (ltd phys acty as seniors).




Orr & Moorby, (2006).

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# RISK FACTORS DUE TO THE PROGRAM

- One-size-fits-all
  - Much of the PT is group based (eg. Group march/run)

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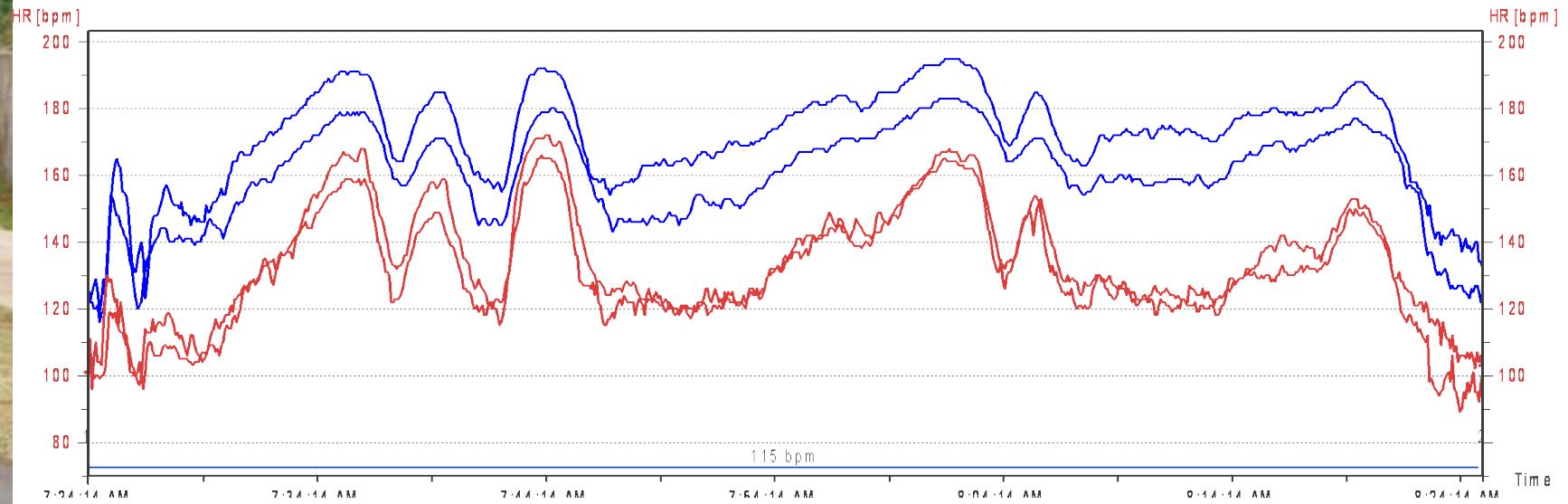
# RISK FACTORS DUE TO THE PROGRAM

- One-size-fits-all
  - Much of the PT was group based (eg. Group march/run)
  - Work efforts mismatched




Orr, R. (2007)

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# RISK FACTORS DUE TO THE PROGRAM

- One-size-fits-all
  - Much of the PT was group based (eg. Group march/run)
  - Work efforts mismatched
  - Plateauing in fitness

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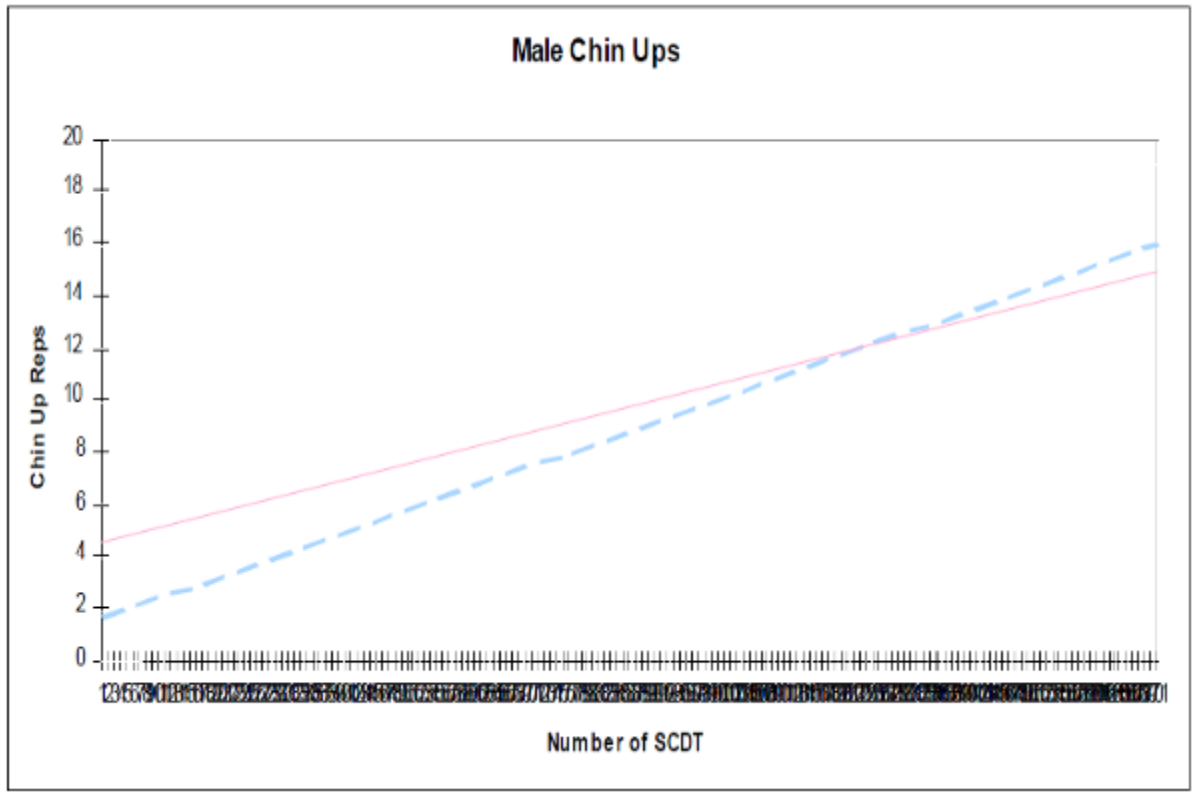


Orr, R. (2010)

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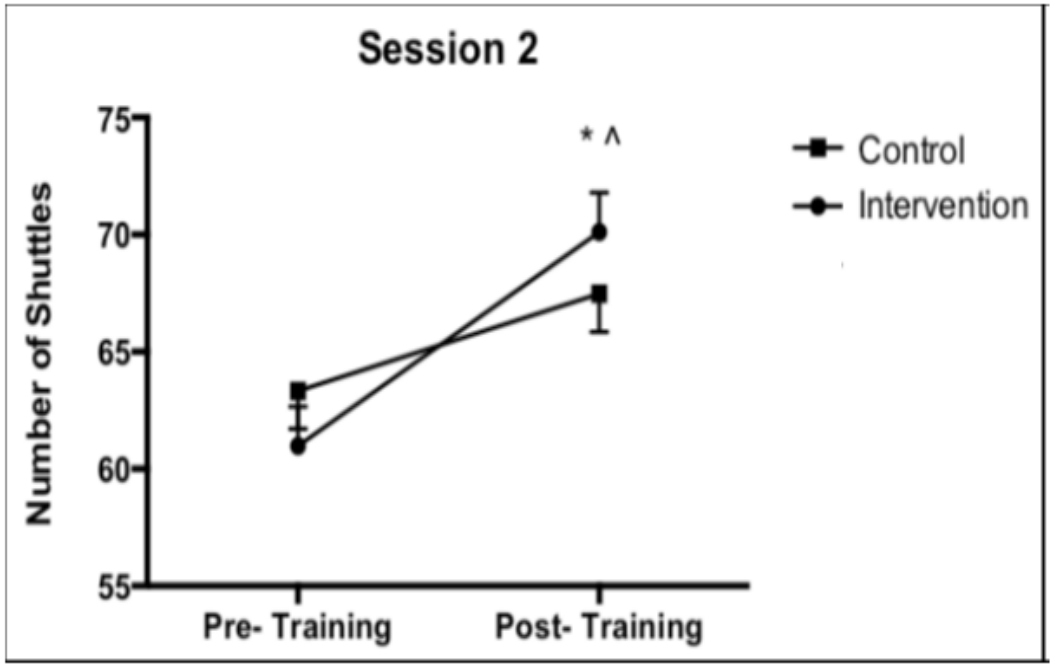
# RISK FACTORS DUE TO THE PROGRAM

Ford, et al., (2015)

- One-size-fits-all – Ability Based Training




| | Session 1 | | Session 2 | |
|---|---|---|---|---|
| | Control | INT | Control | INT |
| **Size n** | 29 | 25 | 118 | 115 |
| **Injuries n (%)** | 4 (14%) | 1 (4%) | 12 (10%) | 7 (6%) |
| **Injury site** | Foot x1 | Foot x 1 | Foot x1 | |
| | Knee x 2 | | Knee x 3 | |
| | Back x 1 | | | Back x 2 |
| | | | Ankle x 2 | Ankle x 1 |
| | | | Calf x 1 | Calf x 1 |
| | | | Lower leg x 3 | Lower leg x 2 |
| | | | Wrist x 2 | Finger x 1 |

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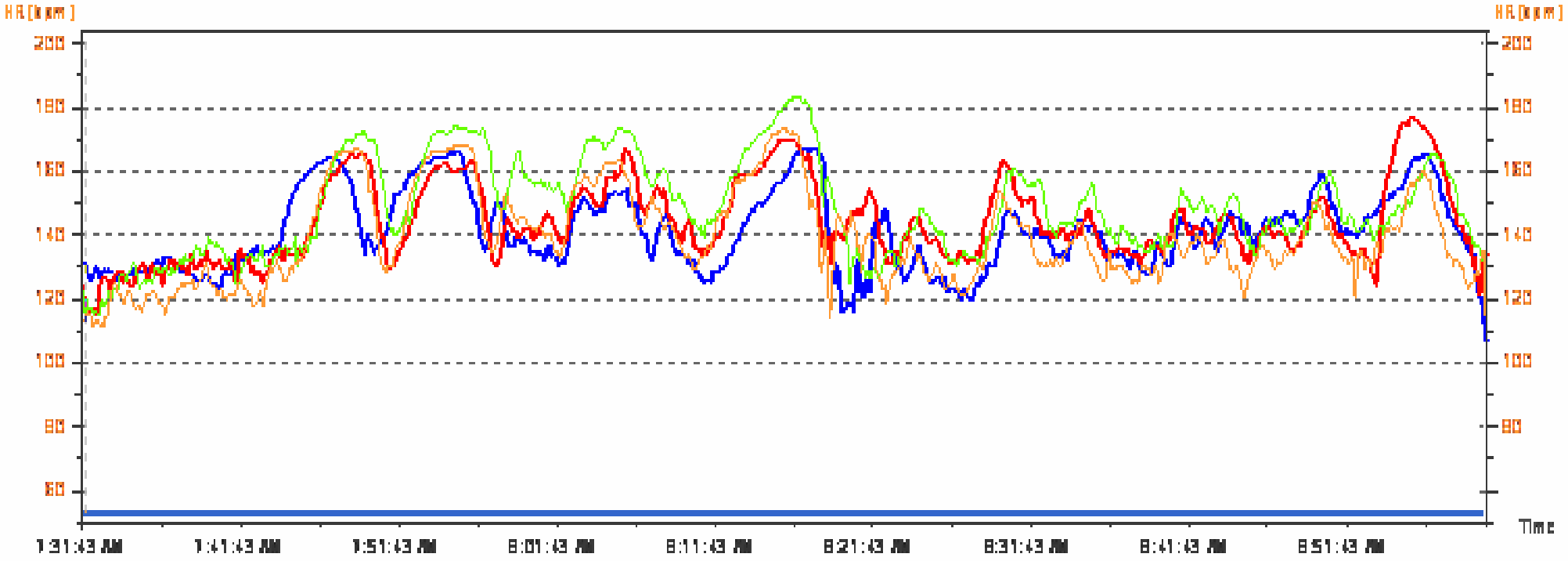
# RISK FACTORS DUE TO THE PROGRAM

- One-size-fits-all – Ability Based Training



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# RISK FACTORS DUE TO THE PROGRAM

- Program Induced Cumulative Overload (PICO)

INJURY PREVENTION

*An Ongoing Series*

## Avoiding Program-Induced Cumulative Overload (PICO)

*Robin Orr, PhD; Joseph J. Knapik, ScD; Rodney Pope, PhD*

ABSTRACT

This article defines the concept of program-induced cumulative overload (PICO), provides examples, and advises ways to mitigate the adverse effects. PICO is the excessive cumulative physical workload that can be imparted to military personnel by a military training program with an embedded physical training component. PICO can be acute (accumulating within a single

and other accumulating factors may lead to overtraining and eventual injury.[4,5,8] The purpose of this article is to define the concept of PICO, provide examples of its occurrence, consider key literature that usefully contributes to our understanding of this military training phenomenon, and suggest general principles to reduce the likelihood of PICO.

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# RISK FACTORS DUE TO THE PROGRAM

- Program Induced Cumulative Overload (PICO)
  - This is an unseen overload caused by the nature of the overarching training program
    - Includes additional kms/mi's covered marching around the area
    - Other physical activities (drill, weapons training, MUC)

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# RISK FACTORS DUE TO THE PROGRAM

- Program Induced Cumulative Overload (PICO)

| Day | Time | Activity | PT Lesson |
|---|---|---|---|
| y1 | AM | Final Fitness Assessment (2p) | **PT s1** |
| | AM-PM | Navigation Day and Night Assessment (10p) | |
| y2 | PM | In Lines Training | - |
| y3 | AM | Rope Climbing (1p) | **PT s2** |
| | AM-PM | Navigation Day and Night Assessment (10p) | |
| y4 | AM | Obstacle Course (2p) | **PT s3** |
| | PM | Individual Drill Assessment (2p) | |
| | PM | In Lines Training | |
| y5 | AM | 15 Km Endurance March (4p) | **PT s4** |
| | PM | Perform as a member in a section attack (3p) | |
| | PM | Swim 6 (1p) | **PT s5** |

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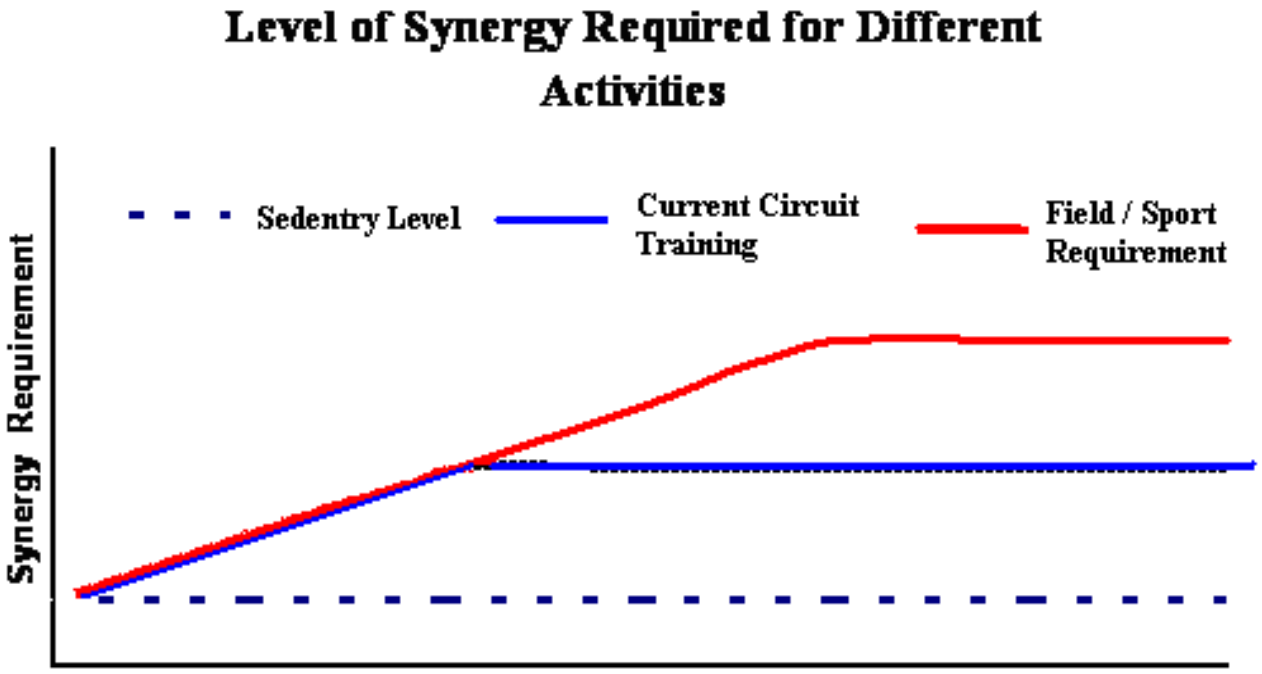
# RISK FACTORS DUE TO THE PROGRAM

- Low synergy requirements

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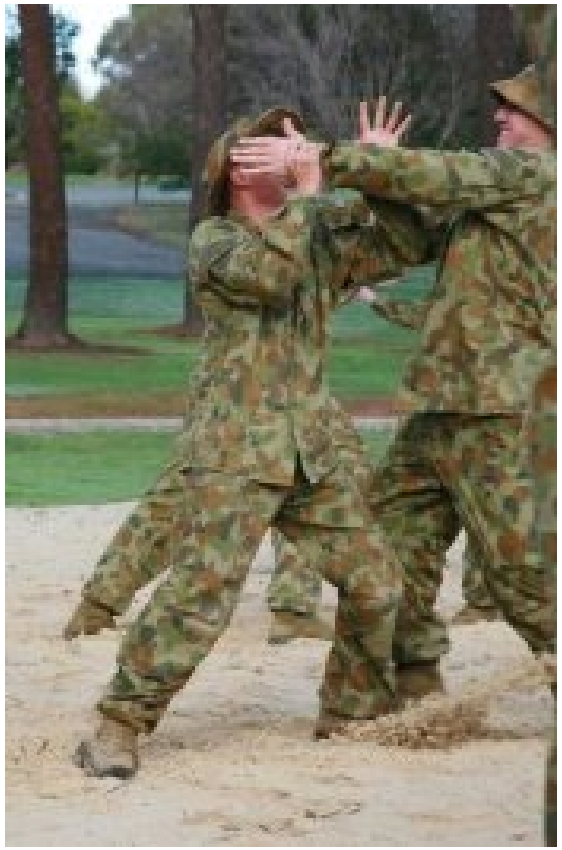
# PERIODISED TRAINING

- Because basic training programs are well defined
  - Length of training (e.g. 12 weeks)
  - Entry standards
  - Outcomes needed to complete training (end-state)

... Training programs for new recruits are easier to periodise



| Phase of Training | Training Plan (18 Months) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Physical Development Phase | | Transition | Physical Hardening Phase | | Transition | Self Management and Corp Specific Phase | | | |
| | (III CLASS) | | | (II CLASS) | | | (I CLASS) | | | |
| Sub Phase of Training | Anatomical Adaptation | Complex Skills Development | Regen | Record | Physical Hardening | Regen | Record | Maintain | Corp Specific | |
| Macrocycle | | | | | | | | | | |
| Microcycle | | | | | | | | | | |
| Individual Fitness and Healthy Lifestyle | Metabolic Fitness | | | | | | | | | |
| | Neuromuscular Skills and Fitness | | | | | | | | | |
| | Injury Prevention | | | | | | | | | |
| | Healthy Lifestyle Education | | | | | | | | | |
| | Personal Training and Fitness | | | | | | | | | |
| Military Specific Fitness | Load Carriage | | | | | | | | | |
| | Complex Warfighting Skills and Fitness | | | | | | | | | |
| Sports Specific Fitness | | | | | | | | | | |
| Remedial Training and Rehabilitation | | | | | | | | | | |

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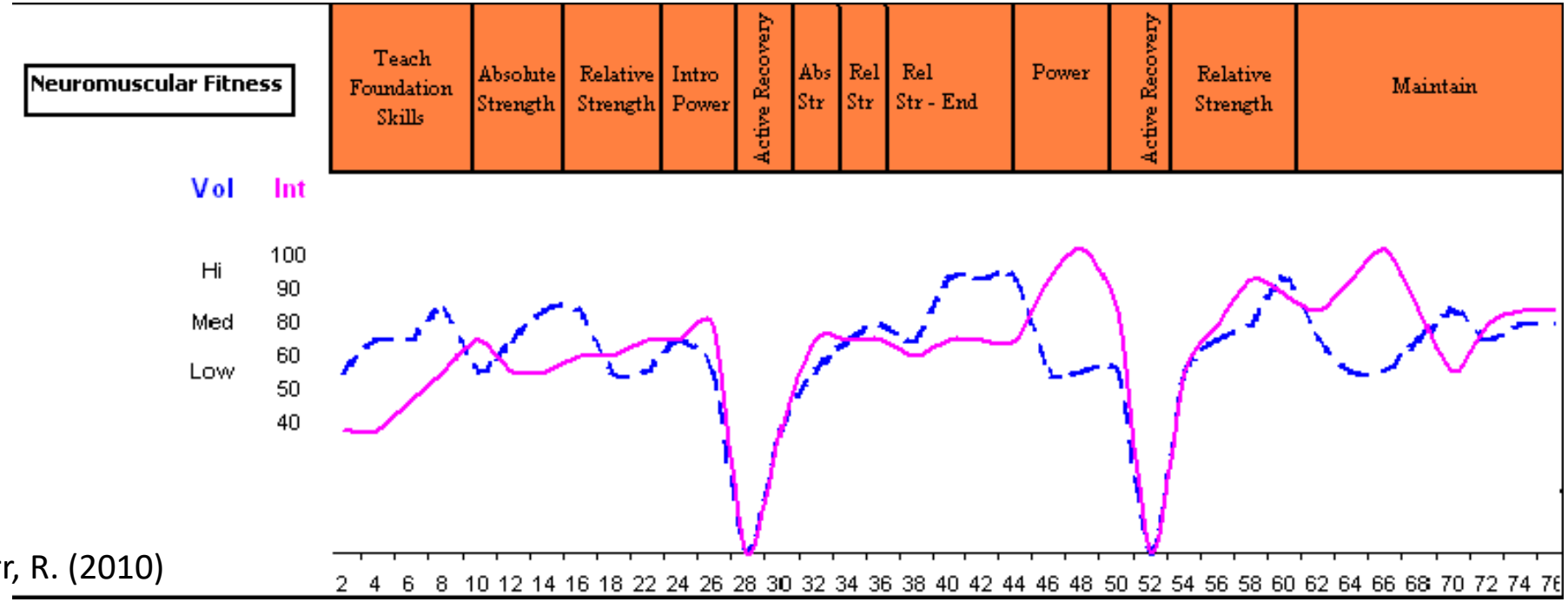
# PERIODISED TRAINING

- Neuromuscular example

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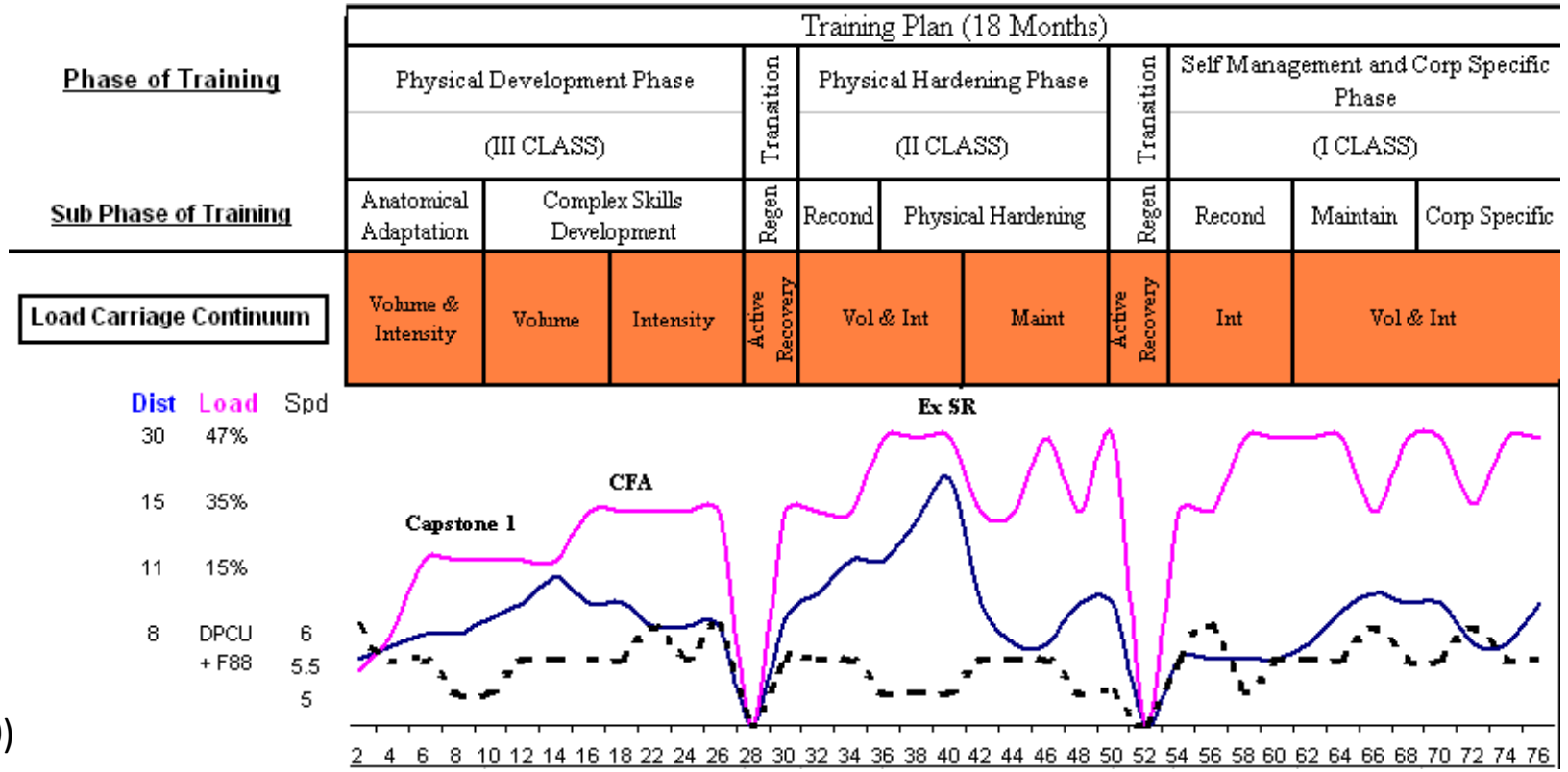
# PERIODISED TRAINING

- Load Carriage example

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第 37 卷 第 1 期
2018 年 1 月

军 事 体 育 学 报
Journal of Military Physical Education and Sports

Vol. 37 No. 1
Jan. 2018

# 士兵负重能力提升训练研究综述

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战术体能研究小组, 澳大利亚 昆士兰 4226)

**摘 要:** 较大的负重不仅影响士兵的平衡性、移动速度及灵敏性, 降低任务执行效率和表现, 还可增加士兵受伤风险。士兵负重能力提升训练是降低负重负面影响, 减少负重相关损伤的重要途径之一。采用文献资料法, 对外军资料中介绍的士兵负重能力提升训练的指导原则, 方式、方法, 训练频率, 训练强度及训练持续时间进行了综述, 目的旨在为我军进行更好的负重能力提升训练, 增强战斗力, 减少训练损伤提供借鉴。

**关键词:** 有氧训练; 阻抗训练; 军队; 负重; 任务执行表现
**中图分类号:** G807.01 **文献标识码:** A **文章编号:** 1671-1300 (2018) 01-0033-05

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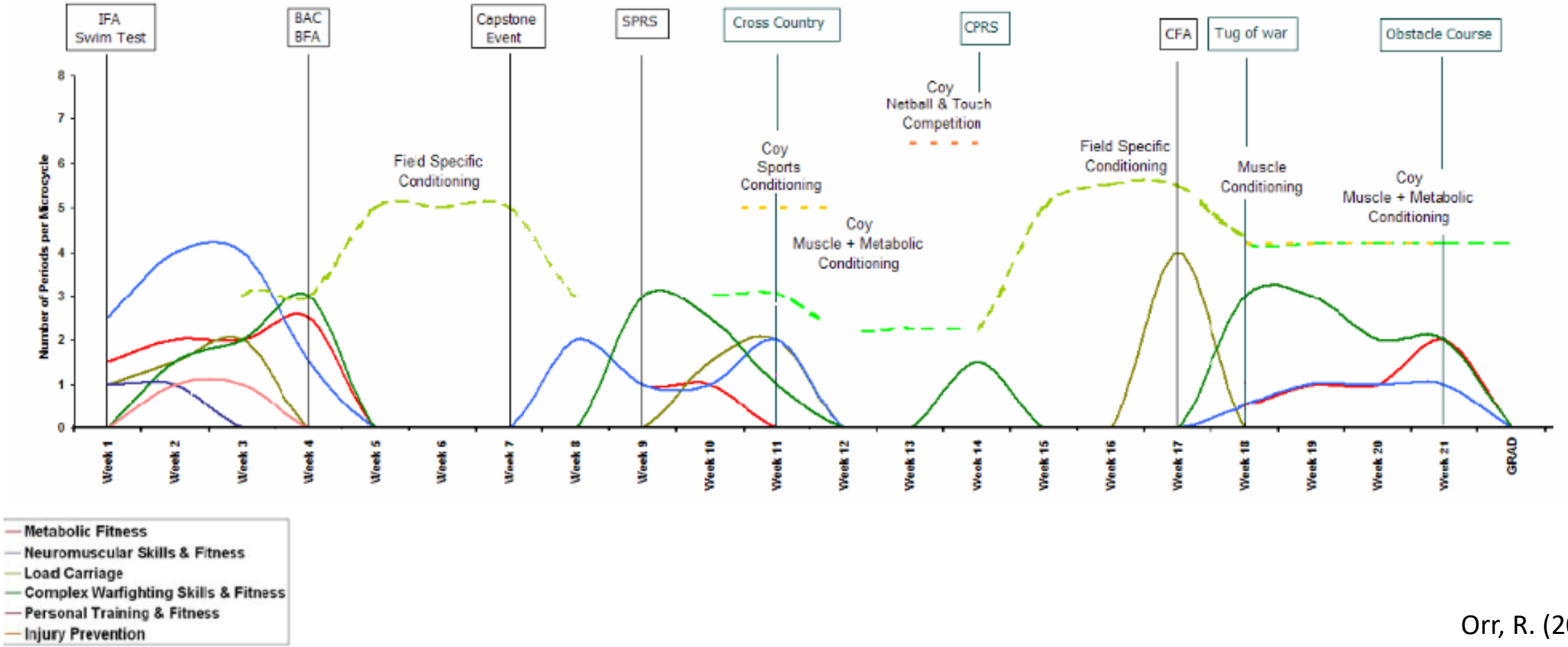


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## Physical Development Phase

### Anatomical Adaptation

Intro Mil PT and Teaching Functional movement patterns
Establish metabolic and neuromuscular base fitness

### Complex Skill Development

Progress from base into more military task orientated fitness (Load Carriage and Complex Warfighting skills and Fitness)
Increase complexity of Neuromuscular skills

Obstacle negotiation under demanding situations
MSD resilience preparation

| | | Macrocycle 1 | Macrocycle 2 | Macrocycle 3 | Macrocycle 4 | Macrocycle 5 | TOTAL |
|---|---|---|---|---|---|---|---|
| | Predicted Lesson Allocation % | | | | | | % of Trg |
| Individual Fitness and Healthy Lifestyle | Metabolic Fitness | 20 | 30 | 20 | 0 | 20 | 18 |
| | Neuromuscular Skills & Fitness | 35 | 20 | 30 | 0 | 15 | 20 |
| | Injury Prevention | 5 | 0 | 0 | 0 | 0 | 1 |
| | Healthy Lifestyle Education | 10 | 15 | 5 | 0 | 15 | 9 |
| | Personal Training & Fitness | 0 | 0 | 0 | 0 | 0 | 0 |
| Military Specific Fitness | Load Carriage | 15 | 0 | 15 | 50 | 0 | 16 |
| | Complex Warfighting Skills & Fitness | 10 | 35 | 30 | 50 | 50 | 35 |
| Sports Specific Fitness | | 5 | 0 | 0 | 0 | 0 | 1 |
| | TOTAL (% of cycle) | 100 | 100 | 100 | 100 | 100 | 100.0 |

| | | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 | Week 13 | Week 14 | Week 15 | Week 16 | Week 17 | Week 18 | Week 19 | Week 20 | Week 21 | GRAD | MSD | TOTAL Periods | TOTAL % of Trg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Lesson Allocations | | | | | | | | | | | | | | | | | | | | | | | | | |
| Individual Fitness and Healthy Lifestyle | Metabolic Fitness | 1.5 | 2 | 2 | 2.5 | | | | 2 | 1 | 1 | 0 | | | 0 | | | | 0.5 | 1 | 1 | 2 | 0 | | 16.5 | 18.8 |
| | Neuromuscular Skills & Fitness | 2.5 | 4 | 4 | 1.5 | | | | 2 | 1 | 1 | 2 | | | 0 | | | | 0.5 | 1 | 1 | 1 | 0 | | 21.5 | 24.4 |
| | Injury Prevention | 1 | 1 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | | 0 | | | | 0 | 0 | 0 | 0 | 0 | | 2 | 2.3 |
| | Healthy Lifestyle Education | 1 | 1 | 1 | 1 | | | | 0 | 0 | 0 | 1 | | | 0 | | | | 1 | 0 | 0 | 1 | 1 | | 8 | 9.1 |
| | Personal Training & Fitness | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | | | 0 | | | | 0 | 0 | 0 | 0 | 0 | | 0 | 0.0 |
| Military Specific Fitness | Load Carriage | 1 | 1.5 | 2 | 0 | | | | 0 | 0 | 1.5 | 2 | | | 1.5 | | | | 0 | 0 | 0 | 0 | 0 | | 13.5 | 15.3 |
| | Complex Warfighting Skills & Fitness | 0 | 1.5 | 2 | 3 | | | | 0 | 3 | 2.5 | 1 | | | 1.5 | | | | 3 | 3 | 2 | 2 | 0 | | 24.5 | 27.8 |
| Sports Specific Fitness | | 0 | 1 | 1 | 0 | | | | 0 | 0 | 0 | 0 | | | 0 | | | | 0 | 0 | 0 | 0 | 0 | | 2 | 2.3 |
| | TOTAL (Number of lessons per microcycle) | 7 | 12 | 12 | 8 | 0 | 0 | 0 | 4 | 5 | 6 | 6 | 0 | 0 | 3 | 0 | 0 | 4 | 5 | 5 | 4 | 6 | 1 | 0 | 88 | 100.0 |
| | | 39 Periods | | | | | | | 49 Periods | | | | | | | | | | | | | | | | | |

**Events:**

| | |
|---|---|
| Week 1 | IFA |
| | Swim Test |
| Week 3 | Navex |
| Week 4 | BAC |
| | BFA |
| Week 7 | Capstone Event |
| Week 9 | SPRS |
| Week 11 | Inter Coy Cross Country Competition |
| Week 14 | CPRS Testing |
| Week 17 | CFA (BB3B with ADFA SST) |
| Week 18 | Inter Coy Tug of War Competition |
| Week 21 | Inter Coy Obstacle Course Competition |

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| | | Anatomical Adaptation | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Intro Mil PT and Teaching Functional movement patterns<br>Establish metabolic and neuromuscular base fitness | | | | | | |
| | | Macrocycle 1 | | | Macrocycle 2 | | | |
| | Predicted Lesson Allocation % | | | | | | | |
| Individual Fitness and Healthy Lifestyle | Metabolic Fitness | 20 | | | 30 | | | |
| | Neuromuscular Skills & Fitness | 35 | | | 20 | | | |
| | Injury Prevention | 5 | | | 0 | | | |
| | Healthy Lifestyle Education | 10 | | | 15 | | | |
| | Personal Training & Fitness | 0 | | | 0 | | | |
| Military Specific Fitness | Load Carriage | 15 | | | 0 | | | |
| | Complex Warfighting Skills & Fitness | 10 | | | 35 | | | |
| Sports Specific Fitness | | 5 | | | 0 | | | |
| | TOTAL (% of cycle) | 100 | | | 100 | | | |
| | Lesson Allocations | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 |
| Individual Fitness and Healthy Lifestyle | Metabolic Fitness | 1.5 | 2 | 2 | 2.5 | | | |
| | Neuromuscular Skills & Fitness | 2.5 | 4 | 4 | 1.5 | | | |
| | Injury Prevention | 1 | 1 | 0 | 0 | | | |
| | Healthy Lifestyle Education | 1 | 1 | 1 | 1 | | | |
| | Personal Training & Fitness | 0 | 0 | 0 | 0 | | | |
| Military Specific Fitness | Load Carriage | 1 | 1.5 | 2 | 0 | | | |
| | Complex Warfighting Skills & Fitness | 0 | 1.5 | 2 | 3 | | | |
| Sports Specific Fitness | | 0 | 1 | 1 | 0 | | | |
| | TOTAL (Number of lessons per microcycle) | 7 | 12 | 12 | 8 | 0 | 0 | 0 |
| | | 39 Periods | | | | | | |

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## Class PT Periodised Microcycles by Semester (S1)

### III CLASS (Semester 1)

**Physical Development Phase** — Transition Phase: Regeneration

| | Anatomical Adaptation | Complex Skill Development | Regeneration |
|---|---|---|---|
| | Intro MS PT and Teaching Functional movement patterns<br>Establish metabolic and neuromuscular base fitness | Progress from base into more military task orientated fitness (Load Carriage and Complex Warfighting skills and Fitness)<br>Increase complexity of Neuromuscular skills | Obstacle negotiation under demanding situations<br>MSD resistance preparation | Decoding Maintenance |
| | Macrocycle 1 | Macrocycle 2 | Macrocycle 3 | Macrocycle 4 | Macrocycle 5 | Macrocycle A |
| | Week 1 – Week 17 | Week 18 – Week 21 | Leave Period |
| Individual Fitness and Healthy Lifestyle — Metabolic Fitness | 1.5 2 2 2.5 | 2 1 1 0 | 0 | 0.5 1 1 2 0 | Semester Basic Conditioning Program |
| Individual Fitness and Healthy Lifestyle — Neuromuscular Skills & Fitness | 2.5 4 4 1.5 | 2 1 1 2 | 0 | 0.5 1 1 1 0 | |
| Individual Fitness and Healthy Lifestyle — Injury Prevention | 1 1 0 0 | 0 0 0 0 | 0 | 0 0 0 0 0 | |
| Individual Fitness and Healthy Lifestyle — Healthy Lifestyle Education | 1 1 1 1 | 0 0 0 1 | 0 | 1 0 0 1 1 | |
| Individual Fitness and Healthy Lifestyle — Personal Training & Fitness | 0 0 0 0 | 0 0 0 0 | 0 | 0 0 0 0 0 | |
| Military Specific Fitness — Load Carriage | 1 1.5 2 0 | 0 0 1.5 2 | 1.5 | 2 0 0 0 0 | |
| Military Specific Fitness — Complex Warfighting Skills & Fitness | 0 1.5 2 3 | 0 3 2.5 1 | 1.5 | 3 3 2 2 0 | |
| Sports Specific Fitness | 0 1 1 0 | 0 0 0 0 | 0 | 0 0 0 0 0 | |
| TOTAL (Number of lessons per microcycle) | 7 12 12 8 0 0 0 | 4 5 6 3 0 0 4 | 0 | 5 5 4 0 1 0 | 28 + 3 |
| | 39 Periods | 49 Periods | 26-29 Periods |
| Intra - College Sports | | SSC | Netball & Touch | Lee Shield Events | |
| Coy PT Focus | | Met Cond XCT | Muso / Met Cond CPRS Prep | Muso Cond TOW Prep; Muso / Met Cond Obs Cse Prep | |

### II CLASS (Semester 1)

**Physical Hardening Phase** — Transition Phase: Regeneration

| | Reconditioning | Physical Hardening | Regeneration |
|---|---|---|---|
| | Ex SR prep (Specific to activity eg: wearing body armour, night PT in NVDs etc) | Ex SR and EX SR Regeneration | Field specific fitness<br>Post field regeneration | Reconditioning of military task orientated fitness<br>Field specific fitness | Military task orientated fitness maintenance | Decoding Maintenance |
| | Macrocycle 1 | Macrocycle 2 | Macrocycle 3 | Macrocycle 4 | Macrocycle 5 | Macrocycle D |
| | Week 1 – Week 17 | Week 18 – Week 21 | Leave Period |
| Individual Fitness and Healthy Lifestyle — Metabolic Fitness | 2 1 0.5 0 | 1.5 1 | 0 | 1.5 1 | 0 2 1 1 1 | Semester Basic Conditioning Program |
| Individual Fitness and Healthy Lifestyle — Neuromuscular Skills & Fitness | 3 0.5 0.5 0 | 1.5 1 | 0 | 0 0 | 0 0 1 1 1 | |
| Individual Fitness and Healthy Lifestyle — Injury Prevention | 0 0 0 0 | 0 2 | 0 | 0 1 | 0 0 0 0 0 | |
| Individual Fitness and Healthy Lifestyle — Healthy Lifestyle Education | 0 0 0 0 | 1 0 | 1 | 0 0 | 1 1 0 1 0 | |
| Individual Fitness and Healthy Lifestyle — Personal Training & Fitness | 0 0 0 0 | 0 0 | 0 | 0 0 | 0 0 0 0 0 | |
| Military Specific Fitness — Load Carriage | 0 2.5 3.5 2 | 0 0 | 0 | 1 2 | 2 0 0 0 0 | |
| Military Specific Fitness — Complex Warfighting Skills & Fitness | 0 2 1.5 5 | 2 0 | 4 | 1.5 3 | 2 1 2 2 0 | |
| Sports Specific Fitness | 0 0 0 0 | 0 0 | 0 | 0 0 | 0 0 0 0 0 | |
| TOTAL (Number of lessons per microcycle) | 5 6 6 7 0 0 4 0 0 0 5 0 4 7 0 0 0 | 5 6 4 4 6 2 0 | 28 + 3 |
| | 24 Periods | 46 Periods | 26-29 Periods |
| Intra - College Sports | Sports specific conditioning | AFL | SSC | Netball & Touch | Lee Shield Events | |
| Coy PT Focus | Muso / Met Cond Sports PRS Prep | Met Cond XCT Prep | XCT | Muso / Met Cond CPRS Prep | Muso Cond TOW Prep; Muso / Met Cond Obs Cse Prep | |

### I CLASS (Semester 1)

**Self Management and Corp Specific Phase**

| | Reconditioning | Maintenance | Corp Specific |
|---|---|---|---|
| | General reconditioning<br>Field specific reconditioning | Field specific fitness<br>Post field regeneration | Begin Self Management Phase<br>Field specific fitness | Continue Self Management<br>Increase corp specificity (Combat / Combat Support Fitness Training) |
| | Macrocycle 1<br>Macrocycle 2 | Macrocycle 3 | Macrocycle 4 | Macrocycle 5 |
| | Week 1 – Week 17 | Week 18 – Week 21 | Leave Period |
| Individual Fitness and Healthy Lifestyle — Metabolic Fitness | 1.5 1 0 0 | 1.5 0.5 | 0 | 0 0 | 0 0 0 0 0 | Semester Basic Conditioning Program |
| Individual Fitness and Healthy Lifestyle — Neuromuscular Skills & Fitness | 1.5 1 1 0 | 1.5 1.5 | 0 | 0 0 | 0 0 0 0 0 | |
| Individual Fitness and Healthy Lifestyle — Injury Prevention | 0 0 0 0 | 1 0 | 0 | 0 0 | 0 0 0 0 0 | |
| Individual Fitness and Healthy Lifestyle — Healthy Lifestyle Education | 0 0 0 1 | 0 0 | 1 | 0 0 | 1 0 0 2 0 | |
| Individual Fitness and Healthy Lifestyle — Personal Training & Fitness | 0 0 0 0 | 0 0 | 0 | 0 0 | 2 2 2 0 0 | |
| Military Specific Fitness — Load Carriage | 1 2 2 2 | 1 1.5 | 0 | 1 2 | 1 0 0 0 0 | |
| Military Specific Fitness — Complex Warfighting Skills & Fitness | 1 2 2 2 | 2 0.5 | 4 | 3 5 | 1 4 2 0 0 | |
| Sports Specific Fitness | 0 0 0 0 | 0 0 | 0 | 0 0 | 0 0 0 0 0 | |
| TOTAL (Number of lessons per microcycle) | 5 6 6 5 0 7 4 0 0 0 5 0 4 7 0 0 0 | 5 6 4 2 0 0 | |
| | 22 Periods | 16 Periods | 28 Periods |
| Intra - College Sports | Sports specific conditioning | AFL | SSC | Netball & Touch | Lee Shield Events | |
| Coy PT Focus | Muso / Met Cond Sports PRS Prep | Met Cond XCT Prep | Met Cond XCT | Muso / Met Cond CPRS Prep | Muso Cond TOW Prep; Muso / Met Cond Obs Cse Prep | |

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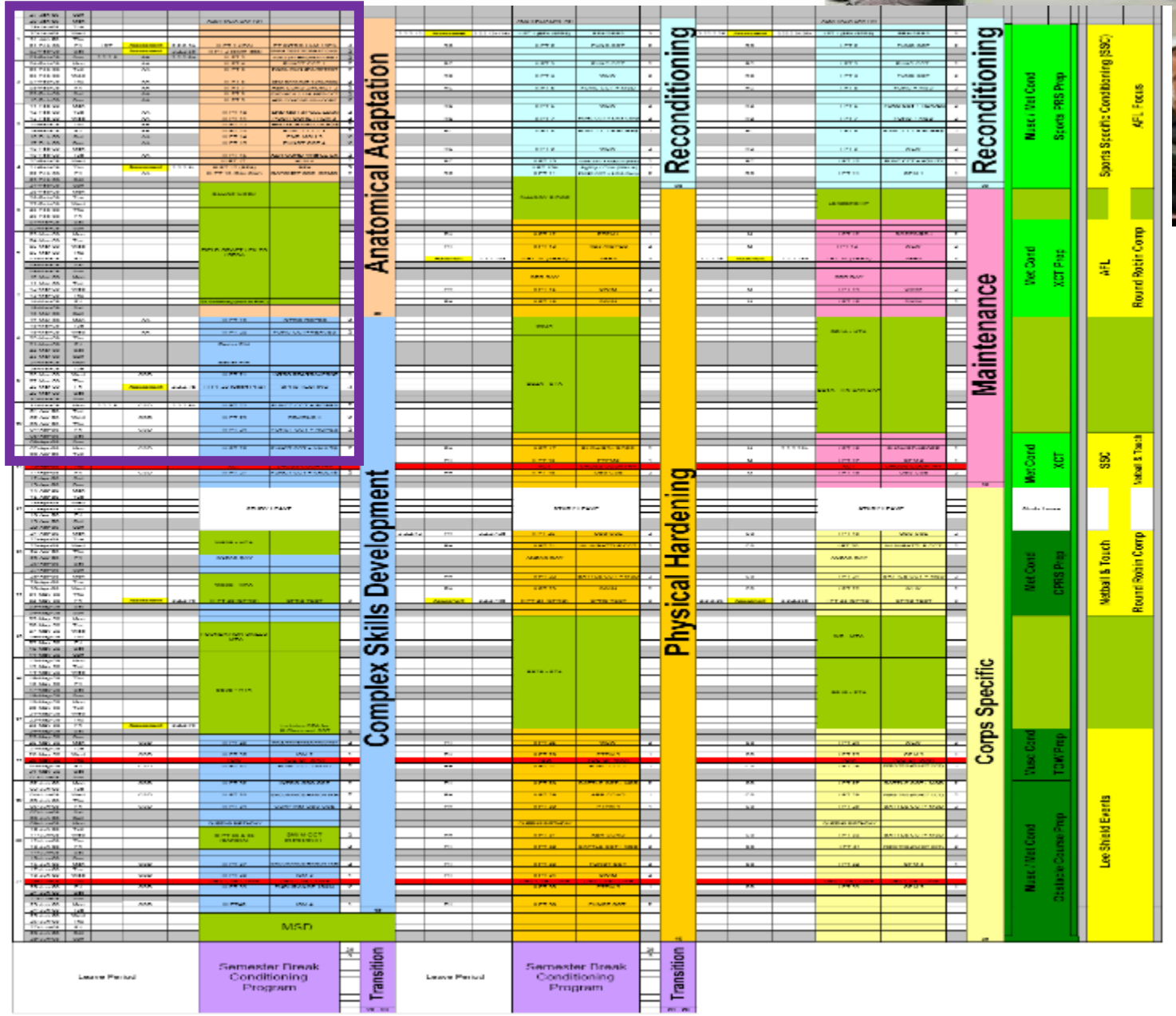
Anatomical Adaptation
Complex Skills Development
Physical Hardening
Reconditioning
Maintenance
Reconditioning
Corps Specific
MSD
Semester Break Conditioning Program
Transition
Leave Period
Semester Break Conditioning Program
Transition

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| W | DATE | DAY | NLO | TYPE | CLO | PERIODS | LESSON | Period | |
|---|---|---|---|---|---|---|---|---|---|
| | 26-Jan-08 | Sat | | | | | | | |
| | 27-Jan-08 | Sun | | | | | | | |
| 1 | 28-Jan-08 | Mon | | | | AUSTRALIA DAY P/H | | | Anatomical Adaptation |
| | 29-Jan-08 | Tue | | | | | | | |
| | 30-Jan-08 | Wed | | | | | | | |
| | 31-Jan-08 | Thu | | | | | | | |
| | 01-Feb-08 | Fri | ICT | Assessment | 2.2.2.5a | III PT 1 (IFA) | PT INTRO HLM 1/IFA | 3 | |
| | 02-Feb-08 | Sat | | Assessment | 2.2.2.5b | III PT 2 (swim test) | SWIM TEST/FORMATIONS | 2 | |
| | 03-Feb-08 | Sun | 2.2.2.6 | AA | 2.2.2.6a | III PT 3 | HLM 2 (INJ MNG)/AER COND 1 | 2 | |
| 2 | 04-Feb-08 | Mon | | AA | | III PT 4 | FUNCT CCT 1 | 2 | |
| | 05-Feb-08 | Tue | | AA | | III PT 5 | FAMIL RUN /IFA RETEST | 2 | |
| | 06-Feb-08 | Wed | | | | | | | |
| | 07-Feb-08 | Thu | | AA | | III PT 6 | END MAR1/OM 1 (INLINES) | 2 | |
| | 08-Feb-08 | Fri | | AA | | III PT 7 | AER COND 2/FUNCT 2 | 2 | |
| | 09-Feb-08 | Sat | | AA | | III PT 8 | END MCH 2 / INLINES CCT | 2 | |
| | 10-Feb-08 | Sun | | AA | | III PT 9 | AER CONDS/PUSH-CORE | 2 | |
| 3 | 11-Feb-08 | Mon | | | | | | | |
| | 12-Feb-08 | Tue | | AA | | III PT 10 | END MCH 3/PULL-LEGS | 2 | |
| | 13-Feb-08 | Wed | | AA | | III PT 11 | PUSH-CORE / HLM 3 | 2 | |
| | 14-Feb-08 | Thu | | AA | | III PT 12 | END MCH 4/PULL-LEGS | 2 | |
| | 15-Feb-08 | Fri | | AA | | III PT 13 | FUNCT CCT 3 | 2 | |
| | 16-Feb-08 | Sat | | AA | | III PT 14 | END MCH 5 | 2 | |
| | 17-Feb-08 | Sun | | AA | | III PT 15 | FUNCT CCT 4 | 2 | |
| 4 | 18-Feb-08 | Mon | | | | | | | |
| | 19-Feb-08 | Tue | | AA | | III PT 16 | AER COND 4/RIFLE EX | 2 | |
| | 20-Feb-08 | Wed | | | | III PT 17 | HLM 4 | 1 | |
| | 21-Feb-08 | Thu | | Assessment | 2.2.2.5c | III PT 17 (BFA) | BFA | 3 | |
| | 22-Feb-08 | Fri | | AA | | III PT 18 (Bay Cse) | BAYONET CSE- DEMO | 2 | |
| | 23-Feb-08 | Sat | | | | | | | |
| | 24-Feb-08 | Sun | | | | RANGE WEEK | | | |
| 5 | 25-Feb-08 | Mon | | | | | | | |
| | 26-Feb-08 | Tue | | | | | | | |
| | 27-Feb-08 | Wed | | | | | | | |
| | 28-Feb-08 | Thu | | | | FIELD CRAFT / EX FC / BB3A | | | |
| | 29-Feb-08 | Fri | | | | | | | |
| | 01-Mar-08 | Sat | | | | | | | |
| | 02-Mar-08 | Sun | | | | | | | |
| 6 | 03-Mar-08 | Mon | | | | | | | |
| | 04-Mar-08 | Tue | | | | | | | |
| | 05-Mar-08 | Wed | | | | | | | |
| | 06-Mar-08 | Thu | | | | | | | |
| | 07-Mar-08 | Fri | | | | | | | |
| | 08-Mar-08 | Sat | | | | | | | |
| | 09-Mar-08 | Sun | | | | | | | |
| 7 | 10-Mar-08 | Mon | | | | | | | |
| | 11-Mar-08 | Tue | | | | | | | |
| | 12-Mar-08 | Wed | | | | | | | |
| | 13-Mar-08 | Thu | | | | | | | |
| | 14-Mar-08 | Fri | | | | Ex Saltzburg (walk to RMC) | | | |
| | 15-Mar-08 | Sat | | | | | | | |
| | 16-Mar-08 | Sun | | | | | | | 39 |

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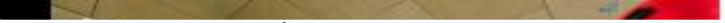


| BODY MVT PATTERN | PARRALLEL LIFT | UNILATERAL LIFT | PULL | PUSH | BEND 1 | ROTATION | SHOULDER MOBILITY | BEND & LIFT |
|---|---|---|---|---|---|---|---|---|
| | SQUATTING | LUNGING | PULLING | PUSHING | UPPER CORE FLEXION | SPINAL ROTATION | ARMS ROM | BENDING |
| LEVEL - 4 | Assisted Squat | Step Up | Cable Pull | 1 Arm Cable Push | Ball Sit | SB Lower Partials | Wall Mil Press | SB Prone Hip Extn |
| LEVEL - 3 | Sit/Stand Squat | Partials | Standing Pull Up | Wall Push Up | Pendulum | SB Circling | Rotators | SB Knee Bend |
| LEVEL - 2 | Partial Squat | Iso Partials | Incl Pull Up | Incline Push Up | Breathing Sit Up | Upper/ Lower Twist | Arm Circling | SB Leg Curl |
| LEVEL - 1 | SB Wall Squat | Static Lunge | Bent Leg Pull Up | Knee Push Up | 1/4 BFA Sit Up | Grav res Upper/ Lower Twist | Window Washer | Kneeling Bend |
| LEVEL 0 | Body Squat | Step Lunge | Lying Pull Up / 1 Arm Row | Push Up | BFA Sit Up | Russian Twist | Curl / Press / Extend | Body Dead Lift |
| LEVEL 1 | Overhead Squat | Walk Lunge | Jump Hve | Push Up Arm Extn | Full Sit Up | Seated Wood Chop | MD Power-Up and throw | Loaded Deadlift |
| LEVEL 2 | Weighted Squat | Directional Lunge | Hve Under/G | Decline Push Up | Halo Sit Up | MB twist and pass | High Pull/Push Press | Unilateral Loaded deadlift |
| LEVEL 3 | MB Squat Pass | Lunge Arms Extended | Loaded Hve | MB Push Up | Weighted Full Sit up | Dynamic twist and pass | MB O/H Pass | Double Extension |
| LEVEL 4 | 1 Arm O/H Squat | Lunge Rotate | Mobile Hve | Clap Push Up | Bosu Full Sit up | Diagonal Mobile Wood Chop | Upright Row Press | Triple Extension |

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# Take Home Messages

- Lower fitness levels, from less fit population, and excessive running cause recruit injuries
- Other factors like Program induced Cumulative Overload (PICO) and accommodation of seasonal variations must be controlled through consulation
- Once developed program becomes stable (No Ad Hoc Training / Programs and no JIT)
- Monitor recovery (Nutritional / Sleep)
- In training environments a well periodized training program can be used to meet targeted physical capability end-states
- The majority of injuries are musculoskeletal to the lower limbs and back (Shoulders?)
- Effective rehabilitation in the unit increasing fitness to greater than that at time of injury is important

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# DESIGNING CONDITIONING PROGRAMS FOR TACTICAL TRAINEES


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